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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/922,366

08/03/2001

Chris Heegard

ALA-110

7792

7590

10/04/2004

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EXAMINER

BOCURE, TESFALDET

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/922,366

Applicant(s)

HEEGARD ET AL.

Examiner

Tesfaldet Bocure

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2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>08/03/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The Information Disclosure Statement, PTO 1449, received on January 29, 2002 has been considered and the initialed copy of the 1449 is attached with this correspondence.

Drawings

2. The Examiner accepts the originally filed drawings.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made:

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. (US patent number 6,002,716) in view of Maseng et al. (US patent number 5,029,186).

Meyer et al., (Meyer hereinafter) teaches a receiver for joint estimation and decoding of the received signal (fig. 1) comprising: a channel estimator 8 for estimating the impulse response of the channel characteristics; a symbol estimator 11 for estimating the received symbol according to the estimated channel characteristics (see output from the estimator 8) as in claims 2,5 and 11; decoder 12 for decoding the received signal; and data output circuit 13, claimed information retrieval in claim 7, for output the final output signal as in claims 1,4,7,9 (claimed uncoder in claim 9) and 10.

What Meyer fails to teach is that the decoder being a search-based decoder having a finite state machine, a metrics computer for computing the metrics of the received signal and estimated signal and a searcher for searching the path and direction of the computed metrics as in claims 1,4,7 and 10.

Maseng for the same endeavor for the instant application and that of Meyer teaches a receiver for joint estimation and decoding of the received signal (see fig. 2) comprising a search-based decoder, Fano algorithm (see abstract and see element 22) for decoding the received signal using the computed metrics according to the direction of the path to generate the most likely received signal as in claims 1,4,7,8 and 10.

Therefore, it would have been obvious to one of an ordinary skill in the art to use the sequential decoder of Maseng in the system of Meyer to decode the received signal

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with smallest possible accumulated metrics and less computation at the time the invention was made (see col. 5, lines 20-27).

Further to claims 3,6 and 12, Maseng also teaches the decoder is finite state trellis decoder (see col. 4, lines 40-68).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent numbers 5,619,167, 6,701,483 and 6,728,322 issued to Adachi, Heegard and Asai et al., respectively disclose a receiver using a sequential decoder.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tesfaldet Bocure
Primary Examiner
Art Unit 2631

T.Bocure

A large, stylized handwritten signature in black ink, overlapping the printed name and title of the examiner.

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